Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_

**Notes Questions for the Unit 9 Notes, Part 3 – The Endocrine System**

Mrs. Krouse, AP Biology

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| **Image** | **Questions** |
|  | 1. Describe what is occurring in each of the six steps shown in the image to the left.  2. What type of hormone is being used? How do you know?  3. Which parts of the pathway shown in the image to the left represent reception, transduction and response? |
| signaltransductpath88signaltransductpath88 | 4. Describe how this image is different from the previous image.  5. What type of hormone is being used? How do you know?  6. Which parts of the pathway shown in the image to the left represent reception, transduction and response? |
| https://sites.google.com/site/apbiologycourtneynihells/_/rsrc/1418173459536/homeostasis/positive%20feedback.jpg?height=261&width=320 | 7. Is the hormone oxytocin (involved in human labor) part of a negative or positive feedback loop? How do you know? (Use information from the image and from your notes to help answer this question). |
| bloodcalciumregulationfeedback.bmp | 8. Are the hormones calcitonin and parathyroid hormone part of a negative or positive feedback loop? How do you know? (Use information from the image and from your notes to help answer this question).  9. Where does calcitonin store the excess calcium moved from the blood? In other words, what tissue in your body is primarily made of calcium? |

1. In response to high blood glucose levels (ex: after a meal), your pancreas releases the hormone insulin into the bloodstream. Insulin causes liver cells to take in glycogen. In the liver cells, glucose molecules join together to form glycogen, a large energy-storage polysaccharide (i.e. big carbohydrate). Bringing glucose molecules into the liver cell to be stored causes blood glucose levels to drop.

In response to low blood glucose levels (ex: if you haven’t eaten a meal in a while), your pancreas releases glucagon into the bloodstream. Glucagon causes glycogen in liver cells to be broken down into individual glucose molecules. These glucose molecules are released into the blood, thereby raising blood glucose levels.

Is this system an example of positive or negative feedback? Explain your answer.

1. Diabetes is a disease in which there is an error in the blood glucose control system. There are two forms of diabetes—Type 1 diabetes and Type 2 diabetes
2. With Type 1 diabetes, the pancreas cannot produce insulin. How will this affect blood glucose levels?
3. With Type 2 diabetes, the pancreas can produce insulin, but the receptors on the liver cells that cause the liver cells to respond to insulin are dysfunctional. How will this affect blood glucose levels?
4. A ripening apple releases the hormone ethylene. Nearby apples come in contact with the ethylene hormone and ripen in response. As they ripen, they release more ethylene. Is this system an example of positive or negative feedback? Explain your answer.
5. Compare and contrast steroid and peptide / amine hormones based on their ability to pass through the membrane and the type of receptors they bind to (i.e. plasma membrane receptors or intracellular receptors).
6. What are the pros and cons of using the endocrine system as a method of cell signaling? (Hint: Look back to your Part 1 Notes on the Basics of Cell Signaling.)